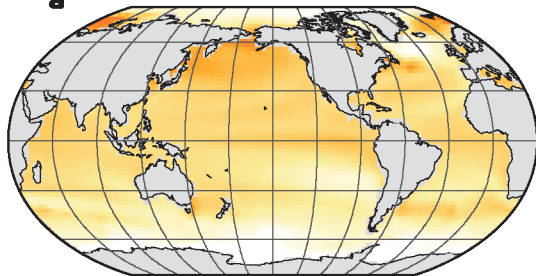
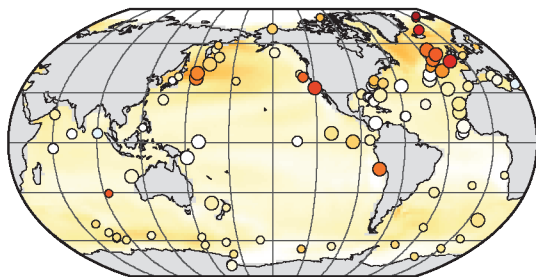


**RCP 8.5  
(2081–2100)**

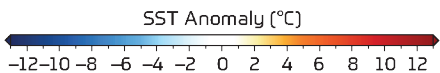
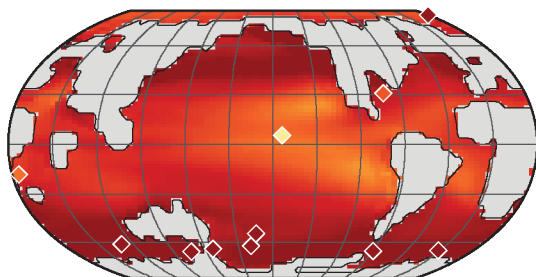
**a**



**Mid Pliocene Warm Period  
(3.3 to 3 Ma)**



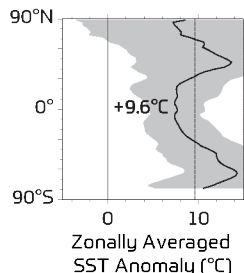
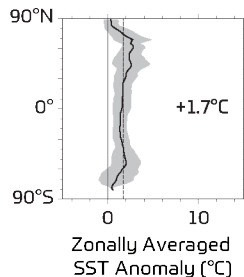
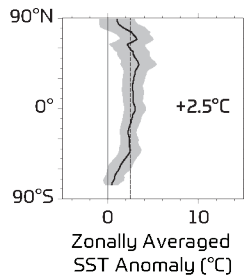
**Early Eocene Climate Optimum  
(54 to 48 Ma)**



Confidence

◦ Low ◦ Medium ◦ High ◦ Very High ◊ Not Assessed

**b**



Scientific ocean drilling data remain instrumental in identifying the magnitude of polar amplification and model-data mismatches in IPCC assessment reports. Projected sea surface temperature (SST) anomalies, relative to pre-industrial values, from multi-model mean simulations (color maps; a) are compared to SST anomalies, relative to present site temperatures, determined from scientific ocean drilling paleoclimate proxy data (discrete data points, plotted using the same color scale as the model data, and a circle size scaled to estimates of confidence) for the mid-Pliocene warm period and Early Eocene Climatic Optimum. Model-data mismatches for these two past intervals help assess the reliability of the modeled 2081–2100 Representative Concentration Pathway (RCP) 8.5 (top row). The modeled zonally averaged SST anomalies (b) for each time interval reveal the degree of polar amplification (shaded band = 2 standard deviations). Model ensemble simulations are from the Coupled Model Intercomparison Project Phase 5 (CMIP5) ensemble using the RCP 8.5 for 2081–2100, and after Haywood et al. (2013), <https://doi.org/10.5194/cp-9-191-2013>, and Lunt et al. (2012), <https://doi.org/10.5194/cp-8-1717-2012>, for the Pliocene and Eocene, respectively. Modified from Masson-Delmotte et al. (2013), Box 5.1, Figure 1